

SUPERMICR[®]

AOC-R1UG-IBQ Add-on Card



User's Guide

Revision 1.0

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WARNING: HANDLING OF LEAD SOLDER MATERIALS USED IN THIS PRODUCT MAY EXPOSE YOU TO LEAD, A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BIRTH DEFECTS AND OTHER REPRODUCTIVE HARM.

Manual Revision 1.0

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Table of Contents

Chapter 1 Safety Guidelines	1-1
1-1 ESD Safety Guidelines.....	1-1
1-2 General Safety Guidelines.....	1-1
1-3 An Important Note to Users	1-1
Chapter 2 Card Components	2-1
2-1 Front Components	2-1
2-2 Front Connectors, Jumpers and LEDs	2-1
QSFP Port.....	2-1
LEDs	2-1
J1 Jumper	2-2
J2 Jumper	2-2
Chapter 3 Installation	3-1
3-1 Hardware Installation	3-1
Before Installation	3-1
Installation	3-1
3-2 Installing Drivers and Firmware	3-2
Linux Drivers	3-2
Windows Drivers	3-2
Firmware Update Procedures	3-3

Notes

Introduction

About this Manual

This manual is written for system integrators, PC technicians and knowledgeable PC users who intend to integrate SuperMicro's AOC-R1UG-IBQ add-on card to their system. This add-on card is used to add an InfiniBand port to the H8DGG-QF serverboard.

Product Features

The AOC-R1UG-IBQ add-on card offers the following features:

- Mellanox® ConnectX-2 QDR
- Single QSFP connector
- 40Gb/s per port
- 1us MPI ping latency
- CPU off-load of transport operations
- End-to-end QoS and congestion control
- Hardware-based I/O virtualization
- TCP/UDP/IP stateless off-load
- External optical media adapter and active cable support
- Dimensions: 12.79" (32.48cm) x 8.66" (22cm) (length x width)



NOTE: The AOC-R1UG-IBQ add-on card is designed for the H8DGG-QF Supermicro motherboard. Please go to www.supermicro.com for the latest list of supported platforms.

Operating Systems Supported

The AOC-R1UG-IBQ add-on card supports the following Operating Systems (OS):

- Windows 2003/Windows 2008
- VMware ESX Server 3.5
- SLES
- RedHat
- Fedora
- CCS 2003

An Important Note to Users

All images and layouts shown in this user's guide are based upon the latest revision available at the time of publishing. The card you have received may or may not look exactly the same as the graphics shown in this manual.

Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. When returning to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

For faster service, RMA authorizations may be requested online at:

<http://www.supermicro.com/support/rma/>

Whenever possible, repack the add-on card in the original Supermicro box, using the original packaging materials. If these are no longer available, be sure to pack the add-on card in an anti-static bag and inside the box. Make sure that there is enough packaging material surrounding the add-on card so that it does not become damaged during shipping.

This warranty only covers normal consumer use and does not cover damages incurred in shipping or from failure due to the alteration, misuse, abuse or improper maintenance of products.

During the warranty period, contact your distributor first for any product problems.

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9

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Notes

Chapter 1

Safety Guidelines

To avoid personal injury and property damage, carefully follow all the safety steps listed below when accessing your system or handling the components.

1-1 ESD Safety Guidelines

Electric Static Discharge (ESD) can damage electronic components. To prevent damage to your system, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing a component from the antistatic bag.
- Handle the add-on card by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the card and peripherals back into their antistatic bags when not in use.

1-2 General Safety Guidelines

- Always disconnect power cables before installing or removing any components from the computer.
- Disconnect the power cable before installing or removing any cables from the system.
- Make sure that the add-on card is securely and properly installed on the motherboard to prevent damage to the system due to power shortage.

1-3 An Important Note to Users

All images and layouts shown in this user's guide are based upon the latest PCB Revision available at the time of publishing. The card you have received may or may not look exactly the same as the graphics shown in this manual.

Notes

Chapter 2

Card Components

2-1 Front Components

Figure 2-1 shows the front components of the AOC-R1UG-IBQ add-on card.

Figure 2-1. AOC-R1UG-IBQ Add-on Card Front Components



Table 2-1 lists the add-on card's front components and their description.

Table 2-1. Front Components

Number	Name	Description
1	QSFP Connector Port	Port for a single QSFP Connector
2	J1 Jumper	Flash ROM Present enable/disable jumper
3	Mellanox ConnectX-2 QDR chip	Controller chip for the AOC-R1UG-IBQ add-on card.
4	J2 Jumper	This jumper is used for Engineering Debugging only.

2-2 Front Connectors, Jumpers and LEDs

This section describes the front connectors, jumpers and LEDs found on the AOC-R1UG-IBQ add-on card.

QSFP Port

The AOC-R1UG-IBQ card contains a single QSFP port. This port allows the AOC-R1UG-IBQ add-on card to connect to a QSFP passive copper network cable at speeds of up to 40 Gbps using four channels. This connector offers four times the density of traditional SFP ports and support speeds up to 10 Gb/s per channel.

LEDs

The AOC-R1UG-IBQ add-on card contains an LED that is used to display activity as well as link-up of the port. See Table 2-2 for LED color and blinking definitions.

Table 2-2. LAN Port LEDs

LED	Color	Definition
Activity	Blinking	Port Activity
Link-up	Yellow	Logical Link-up
	Green	Physical Link-up
	Off	No connection

J1 Jumper

The J1 jumper is used to tell the Mellanox chip that there is a Flash ROM present in the system. If the jumper is closed (enabled) it means that no Flash ROM is present, while open (disabled) means that a Flash ROM is present.

J2 Jumper

The J2 jumper is used for engineer debugging only.

Chapter 3

Installation

3-1 Hardware Installation

User the directions below to install the AOC-R1UG-IBQ add-on card into your system.

Before Installation

Before Installation, do the following

1. Power down the system.
2. Remove the power cord from the wall socket.
3. Use industry standard anti-static equipment (i.e. gloves or wrist strap) and/or an environment that prevents accidental electrostatic discharge.
4. Familiarize yourself with the server, motherboard, and/or chassis documentation.
5. Confirm that your Operating System includes the latest updates and hot-fixes.

Installation



NOTE: This card is designed for the H8DGG-QF serverboard only.

The AOC-R1UG-IBQ add-on card can be installed directly into both the SBX connector and PCI-E 2.0 x8 (in a x16) slot onto the H8DGG-QF serverboard. Position the add-on card in both the PCI-E slot and over the SBX connector and gently push down on both sides of the card until it slides into the PCI-E connector and SBX connector together.

Installing the Add-on Card

1. Remove the server cover and, if necessary, set aside any screws for later use.
2. Remove the add-on card slot cover. If the case requires a screw, place the screw aside for later use.
3. Position the add-on card in both the PCI-E slot and over the SBX connector and gently push down on both sides of the card until it slides into the PCI-E connector and SBX connector together.
4. Secure the add-on card to the chassis. If required, use the screw that you previously removed.
5. Replace the chassis cover.
6. Connect the incoming QSFP cable to the QSFP port provided on the card.

7. Plug the power cord into the wall socket and power up the system.

3-2 Installing Drivers and Firmware

Use the procedures below to install both drivers and firmware for the AOC-R1UG-IBQ add-on card for both Linux and Windows.

Linux Drivers

Use the following procedures for installing AOC-R1UG-IBQ add-on card drivers for the Linux operating system.

Installing InfiniBand Drivers for the Linux Operating System

1. From the CDR-NIC LAN driver CD or FTP site, go to the following directory:
MELLANOX → INFINIBAND → LINUX.
2. Choose the *InfiniBand Linux* driver package file.
3. Install the driver by the following commands:

```
tar xzvf OFED-<ver>.tgz
cd OFED-<ver>
./install.pl
```

This installs the Linux drivers to your system.

Installing 10G Drivers for the Linux Operating System

1. From the CDR-NIC LAN driver CD or FTP site, go to the following directory:
MELLANOX → CONNECTX_EN → LINUX.
2. Choose the *10G Linux* driver package file.
3. Install the driver by the following commands:

```
tar xzvf mlnx_en-<ver>.tgz
cd mlnx_en-<ver>
./install.sh
```

This installs the 10G drivers to your system.

Windows Drivers

Use the following procedures for installing AOC-R1UG-IBQ add-on card drivers for the Windows operating system.

Installing InfiniBand Drivers for the Windows Operating System

1. From the CDR-NIC LAN driver CD or FTP site, go to the following directory:
MELLANOX → INFINIBAND → WINDOWS.
2. Choose the desired InfiniBand Windows driver package file.

3. Double-click to run and install the driver package file.

Firmware Update Procedures

Use the following procedures for updating the AOC-R1UG-IBQ add-on card firmware for both the Linux and Windows operating systems.

Updating Firmware for the Linux Operating System

1. From the CDR-NIC LAN driver CD or FTP site, go to the following directory:
MELLANOX → FIRMWARE_TOOL → LINUX.
2. Choose the *MFT Linux* package file and *untar* the package file.
3. Install the package by the following command:

```
cd mft-<ver>
./install.sh
```

4. Install the firmware by the following commands:

```
mst start
mst status    *note down the pci_cr0 device name*
flint -d <pci_cr0 device name> -i <firmware file name>.bin
b
```

Updating Firmware for the Windows Operating System

1. From the CDR-NIC LAN driver CD or FTP site, go to the following directory:
MELLANOX → FIRMWARE_TOOL → WINDOWS.
2. Choose the desired MFT Windows package file.
3. Double-click to run and install the MFT package file.
4. Open up the DOS Command Prompt and locate the MFT folder.
5. Install the firmware by the following commands:

```
mst start
mst status    *note down the pci_cr0 device name*
flint -d <pci_cr0 device name> -i <firmware file name>.bin
b
```

Notes

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Notes